

Your Name:

Duration of the Quiz is 15 minutes. There are two problems, worth 20 points. Show all your work for full credit. Books, notes etc. are prohibited. Calculators are NOT permitted.

1. Compute  $f_{xyxzy}$  for

$$f(x, y, z) = y \sin(xz) \sin(x + z) + (x + z^2) \tan y + x \tan\left(\frac{z + z^{-1}}{y - y^{-1}}\right)$$

2. Use the linear approximation to estimate the value.

$$\frac{0.98^2}{2.01^3 + 1}$$